



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/813,137	03/21/2001	Masaki Mizutani	35.C13584 Div. I	1435

5514 7590 04/22/2003

FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

GOFF II, JOHN L

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 04/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/813,137	MIZUTANI ET AL.	
	Examiner	Art Unit	
	John L. Goff	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19, 21, 27, 29 and 30 is/are pending in the application.
- 4a) Of the above claim(s) 21, 27 and 29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19 and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/333,019.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

1. This action is in response to Amendment C received on 2/10/03. In view of applicant's amendment the previous 35 U.S.C. 102 and 103 rejections are withdrawn. It is noted the currently pending claims were restricted in the parent case, 09/333,019 now U.S. Patent 6,258,666. The restriction applied in the case was proper in that the combination Group II, the currently pending claims, had a different basis for patentability than did the subcombination Group I, claims 1-18 and 23-26. This is evidenced by the independent claims of Group II, claims 19, 21, and 27, wherein the claims did not require the limitation of a rotating thin film support member to remove the semiconductor thin film. This limitation was the primary basis of patentability for Group I. Amendment C now requires the independent claims of Group II to include this limitation and as such a double patenting issue has been raised (See MPEP 804.01 and in particular 804.01 (B)). **An obviousness type double patenting rejection of the currently pending claims over the parent case is set forth below in view to Amendment C.**

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA - 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Art Unit: 1733

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 19 and 30 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3, 6, and 7 of U.S. Patent No. 6,258,666 in view of Sakaguchi et al. (U.S. Patent 6,100,166) and Hamamoto et al. (U.S. Patent 5,397,713).

The claims of '666 disclose a method of removing a semiconductor thin film from a substrate comprising forming a separation layer on the substrate, forming a semiconductor thin film on the separation layer, bonding a flexible film onto the semiconductor thin film using an energy curable adhesive, peeling the semiconductor thin film from the substrate using a rotating thin film support member such that the semiconductor thin film is supported on the curved surface of the support member.

Regarding claim 30, the claims of '666 are silent as to express language for securing an edge of the flexible film to the support member. However, one of ordinary skill in the art at the time the invention was made would have readily appreciated securing an edge of the flexible film to the support member in view of the claims of '666 requiring the curved surface of the support member to peel and retain (support) the semiconductor thin film.

Regarding claim 19, the claims of '666 are silent as to a specific recitation of using a light-transmitting film and adhesive. However, one of ordinary skill in the art reading claim 6 of '666 requiring "wherein an energy is applied to an adhesive" would have understood such language to be claiming the embodiment in the specification disclosing a light transmitting film and a light curable adhesive (Column 3, lines 60-67 and Column 4, lines 1-4). Furthermore, it would have been within the purview of one of ordinary skill in the art to use as the energy

Art Unit: 1733

curable adhesive a light curable adhesive along with a light transmitting film, as only the expected results would be achieved.

Regarding claims 19 and 30, '666 is silent as to forming the semiconductor thin film from a first layer of a first conductivity type and a second layer of a second conductivity type, and '666 is silent as to forming an electrode on the back of the peeled semiconductor thin film. However, it would have been obvious to one of ordinary skill in the art to incorporate into the method taught by '666 these forming steps as it was well known in the art to perform these steps when producing a solar cell as shown for example by Sakaguchi et al. and Hamamoto et al.

Sakaguchi et al. are directed to a process for producing semiconductor devices including solar cells (Column 1, lines 6-12). Sakaguchi et al. teach a method comprising forming a separation layer (porous layer) on a substrate (such as silicon) (Figures 11(a)-11 (h) and Column 20, lines 14-16 and 28), forming a semiconductor thin film (p⁺ or n⁺ type) on the separation layer (Column 20, lines 29-37), bonding a film onto the thin film using a paste (Column 20, lines 38-39 and Column 21, lines 51-62), exerting force on the film to peel the thin film away from the substrate at the separation layer (Column 20, lines 45-50), and forming an electrode (or an electrode with a n⁺ or p⁺ type layer) on a back surface of the thin film thus peeled (Column 20, lines 54-61).

Hamamoto et al. are directed to a method of producing a thin film solar cell (Column 1, lines 6-11). Hamamoto et al. teach a method comprising forming a separation layer (such as graphite) on a substrate (such as silicon) (Figures 11(a)-11 (k) and Column 2, lines 6-8, and 33-38 and Column 3, lines 18-22 and Column 7, lines 39-42), forming a semiconductor thin film (such as a film having a first semiconductor layer of a first conductivity type (p type) and a

Art Unit: 1733

semiconductor layer of a second conductivity type (n+ type)) on the separation layer (Column 2, lines 8-15, 39-42, and 51-56 and Column 3, lines 23-26 and 35-39), bonding a film (such as an antireflective film) onto the thin film (Column 2, lines 62-65 and Column 3, lines 39-41 and 45-47), bonding a glass substrate on the film (Column 3, lines 1-6 and 48-20), exerting force on the glass-film-thin film sandwich to peel the thin film away from the substrate at the separation layer (Figures 12(a) and 12(b) and Column 3, lines 53-57 and 60-68 and Column 4, lines 1-2), and forming an electrode (or an electrode with a p+ type layer) on a back surface of the thin film thus peeled (Column 3, lines 6-10 and Column 4, lines 11-14).

Allowable Subject Matter

4. Claims 19 and 30 would be allowable subject to the filing of a terminal disclaimer to overcome the double patenting rejection.

5. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or suggest a method of producing a solar cell comprising forming a separation layer on a substrate, forming a semiconductor thin film on the separation layer, bonding a flexible film onto the semiconductor thin film with an adhesive, securing an edge of the flexible film to a thin film support member having a curved surface, rotating the thin film support member while the flexible film is kept in contact with the curved surface of the thin film support member to peel the semiconductor thin film from the substrate, and forming an electrode or another semiconductor thin film and an electrode on a back surface of the peeled semiconductor thin film.

Sakaguchi et al. teach a method comprising forming a separation layer on a substrate, forming a semiconductor thin film on the separation layer, bonding a flexible film onto the semiconductor thin film using a paste, exerting force on the flexible film to peel the semiconductor thin film from the substrate, and forming an electrode on a back surface of the semiconductor thin film thus peeled. Furthermore, Cook teaches a method for peeling thin films from reusable substrates using a heated, curved thin film support member. However, none of the above alone or in combination teach or suggest securing an edge of the flexible film to the thin film support member such that rotating the thin film support member causes the flexible film to remain in contact with the curved surface of the thin film support member and peel the semiconductor thin film from the substrate.

Response to Arguments

6. Applicant's arguments with respect to claims 19 and 30 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

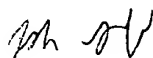
Art Unit: 1733

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **703-305-7481**. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



John L. Goff
April 17, 2003



Michael W. Ball
Supervisory Patent Examiner
Technology Center 1700